



Public Service Company of New Mexico PV Plus Battery for Simultaneous Voltage Smoothing and Peak Shifting

Project Description

Public Service Company of New Mexico and its partners co-located a 500kW/1MWh advanced lead acid battery with a separately installed 500kW solar photovoltaic (PV) plant to create a dispatchable distributed generation resource. This hybrid resource provides simultaneous voltage smoothing and peak shifting through advanced control algorithms and switches between two configurations, end-of-feeder and beginning-of-feeder. Data collection and analysis produce information for a wide range of applications including grid upgrade deferral. The project has also yielded modeling tools used to optimize battery system control algorithms and further the understanding of feeders with storage and distributed generation. The site is located in southeast Albuquerque.

Goals/Objectives

- Demonstrate that intermittent, renewables-based, distributed generation and storage can mitigate voltage-level fluctuations and enable peak shifting
- Quantify and refine performance requirements, operating practices, and costs associated with the use of advanced storage technologies
- Achieve 15 percent or greater peak-load reduction through a combination of substation-sited PV and storage

Key Milestones

- Battery Manufacture Completed (May 2011)
- Finalize System Control Strategy and Algorithms (May 2011)
- PV and battery system installed and field commissioned (August 2011)
- Demonstration and Final Report Complete (February 2014)

Benefits

- Job creation
- Electricity costs reduced
- Grid efficiency increased
- Next-generation utility system advancement
- Energy security strengthened
- Greenhouse gas emissions reduced



CONTACTS

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PARTNERS

University of New Mexico
Northern New Mexico College
Sandia National Laboratories
East Penn Manufacturing Company
Electric Power Research Institute

PROJECT DURATION

1/1/2010–4/30/2014

BUDGET

Total Project Value
\$6,113,433

DOE/Non-DOE Share
\$2,305,931/\$3,807,502

EQUIPMENT

Advanced Lead Acid and Ultra Batteries
from East Penn Manufacturing
S&C SMS Power Control System
Advanced Data Acquisition System

DEMONSTRATION STATES

New Mexico

CID: OE0000230

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